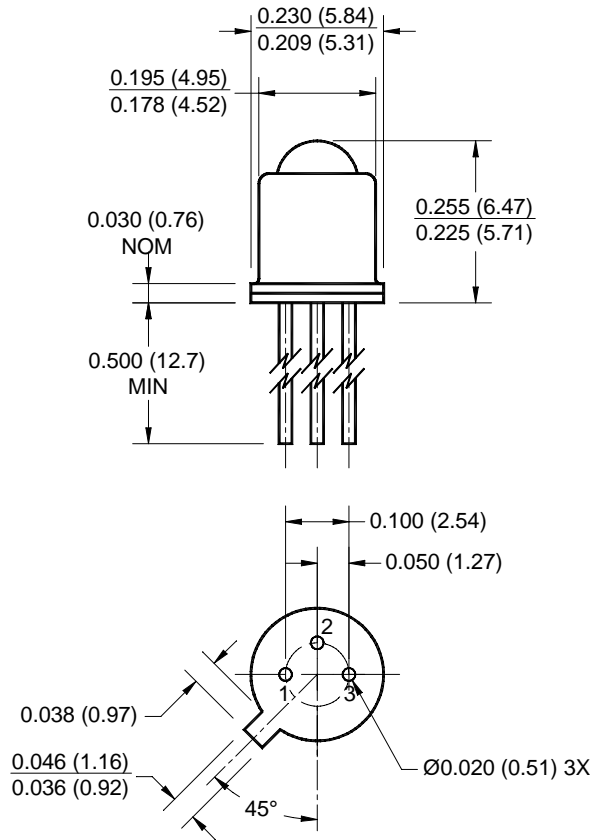
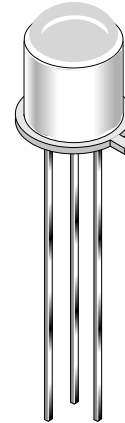


**PACKAGE DIMENSIONS**

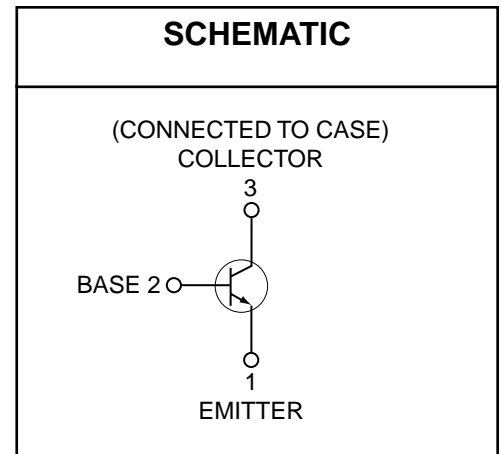


**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010$  (.25) on all non-nominal dimensions unless otherwise specified.



**SCHEMATIC**



**DESCRIPTION**

The L14G1/L14G2/L14G3 are silicon phototransistors mounted in a narrow angle, TO-18 package.

**FEATURES**

- Hermetically sealed package
- Narrow reception angle

**L14G1 L14G2 L14G3**

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-65 to +125	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 to +150	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(3,4,5 and 6)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(3,4 and 6)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Collector to Emitter Breakdown Voltage	$V_{CEO}$	45	V
Collector to Base Breakdown Voltage	$V_{CBO}$	45	V
Emitter to Base Breakdwon Voltage	$V_{EBO}$	5	V
Power Dissipation ( $T_A = 25^\circ\text{C}$ ) <sup>(1)</sup>	$P_D$	300	mW
Power Dissipation ( $T_C = 25^\circ\text{C}$ ) <sup>(2)</sup>	$P_D$	600	mW

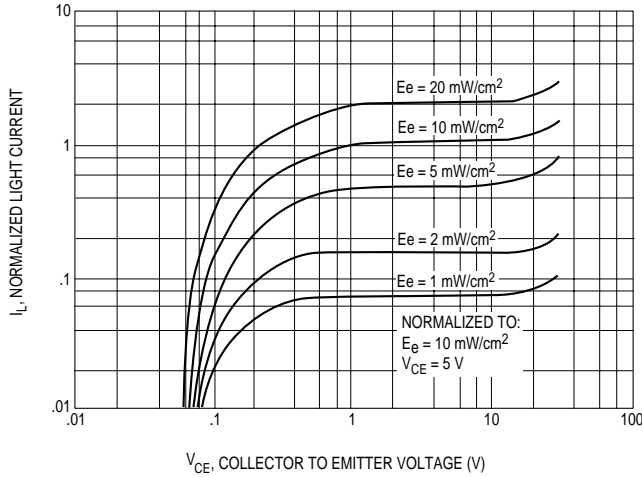
**NOTE:**

1. Derate power dissipation linearly 3.00 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$  ambient.
2. Derate power dissipation linearly 6.00 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$  case.
3. RMA flux is recommended.
4. Methanol or isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip 1/16" (1.6mm) minimum from housing.
6. As long as leads are not under any stress or spring tension.
7. Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.
8. Figure 1 and figure 2 use light source of tungsten lamp at 2870 $^\circ\text{K}$  color temperature. A GaAs source of 3.0 mW/cm<sup>2</sup> is approximately equivalent to a tungsten source, at 2870 $^\circ\text{K}$ , of 10 mW/cm<sup>2</sup>.

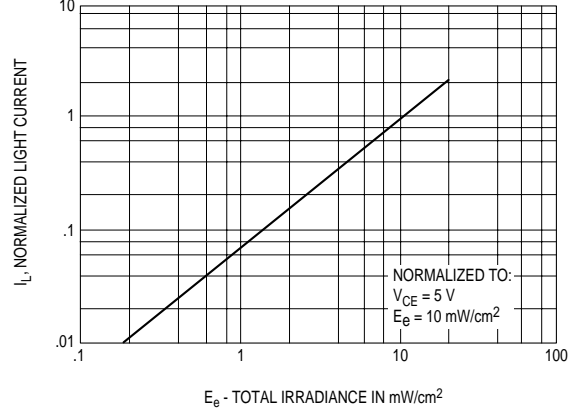
<b>ELECTRICAL / OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ ) (All measurements made under pulse conditions)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Collector-Emitter Breakdown	$I_C = 10\text{ mA}, E_e = 0$	$BV_{CEO}$	45		—	V
Emitter-Base Breakdown	$I_E = 100\ \mu\text{A}, E_e = 0$	$BV_{EBO}$	5.0		—	V
Collector-Base Breakdown	$I_C = 100\ \mu\text{A}, E_e = 0$	$BV_{CBO}$	45		—	V
Collector-Emitter Leakage	$V_{CE} = 10\text{ V}, E_e = 0$	$I_{CEO}$	—		100	nA
Reception Angle at 1/2 Sensitivity		$\theta$		$\pm 10$		Degrees
On-State Collector Current L14G1	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{ V}^{(7,8)}$	$I_{C(ON)}$	1.0		—	mA
On-State Collector Current L14G2	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{ V}^{(7,8)}$	$I_{C(ON)}$	0.5			mA
On-State Collector Current L14G3	$E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{ V}^{(7,8)}$	$I_{C(ON)}$	2.0			mA
Turn-On Time	$I_C = 2\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	$t_{on}$		8		$\mu\text{s}$
Turn-Off Time	$I_C = 2\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	$t_{off}$		7		$\mu\text{s}$
Saturation Voltage	$I_C = 1.0\text{ mA}, E_e = 3.0\text{ mW/cm}^2^{(7,8)}$	$V_{CE(SAT)}$	—		0.40	V

**L14G1 L14G2 L14G3**

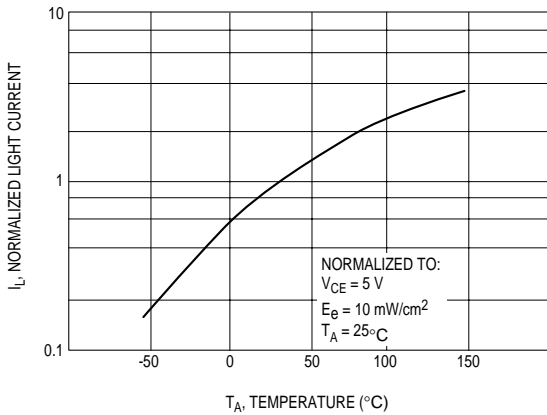
**Figure 1. Light Current vs. Collector to Emitter Voltage**



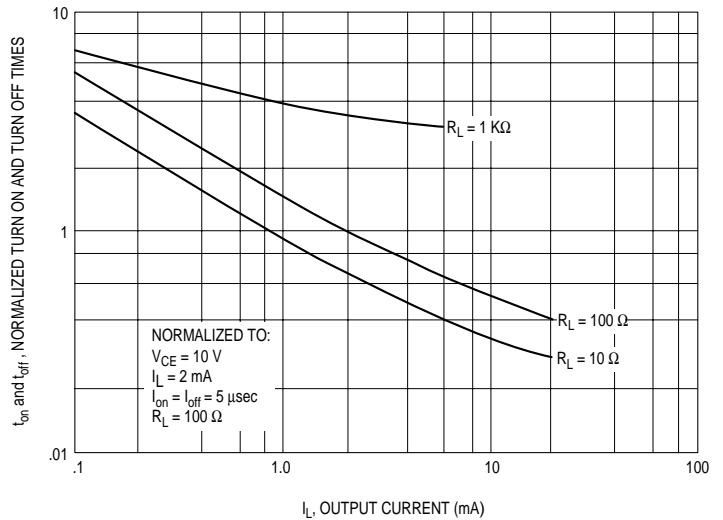
**Figure 2. Light Current vs. Temperature**



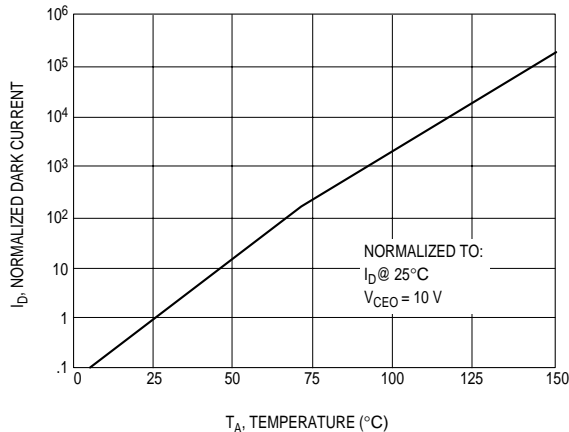
**Figure 3. Normalized Light Current vs. Temperature**



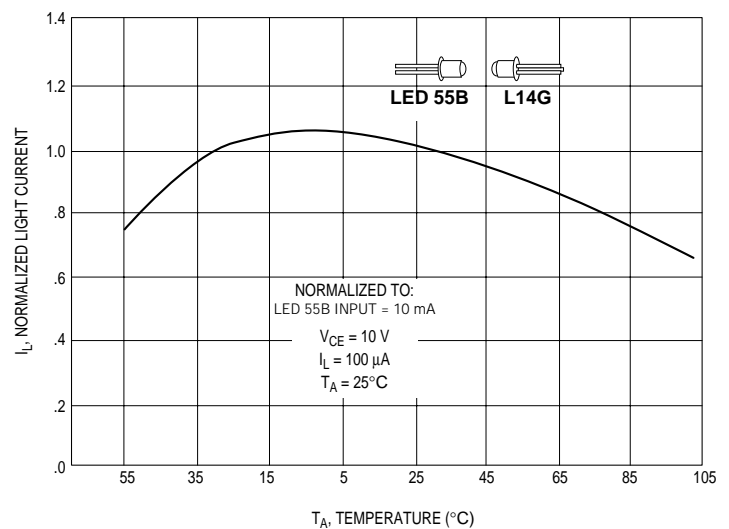
**Figure 4. Switching Times vs. Output Current**



**Figure 5. Dark Current and Temperature**



**Figure 6. Normalized Light Current vs. Temperature Both Emitter (LED 55B) and Detector (L14G) at Same Temperature**



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